SEQUENCE LISTING

<110> BIOPROTEIN TECHNOLOGIES

<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF
      TRANSGENIC NON-HUMAN MAMMALS

<130> D21684

<150> EP 04/290 589
<151> 2004-03-04

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<170> PatentIn version 3.3

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atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc    2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg    2640
taa                                                                    2643
```

<210> 6
<211> 2797
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

and with signal peptide

<400> 6
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct   60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct   120
gccctggctt caggaggctg gcgccgtgat ggcttacagg aaacgtggag cccgccgtga   180
ggctaatatt aataataatg acagaatgca ggagaaagat gacgagaaac aggatcagaa   240
caatagaatg cagctgtctg ataaagtgct ttcaaagaaa gaggaagtcg tcaccgacag   300
tcaggaagaa attaaaattg ctgatgaagt gaagaaatcc acgaaagaag aatctaaaca   360
gctccttgaa gttctgaaaa caaaagaaga gcaccagaaa gagatccagt atgaaattct   420
ccagaaaacg attccaacat ttgaaccaaa agagtcaatc ctgaaaaaac tcgaggatat   480
caaacccgaa caggcgaaga agcagactaa gctgtttaga attttgaac ccagacagct   540
cccaatctat agagctaatg gcgaaaaaga gctgcgtaac agatggtatt ggaagctgaa   600
gaaagatact ctgccagatg gagattatga tgttagagaa tactttctga atctctatga   660
tcaggttctt actgaaatgc cagattatct cctcctgaaa gatatggcag ttgaaaataa   720
gaatagcaga gatgccggaa aagttgttga ttctgaaaca gcaagtatct gtgatgctat   780
ctttcaagat gaggaaacag aaggcgcagt gagaagattc attgccgaga tgagacagcg   840
cgtgcaggct gacagaaacg ttgtcaatta cccatcaatt ctgcatccaa tcgattacgc   900
ttttaatgag tattttctcc agcaccagct cgttgaacca ctgaataatg atattatctt   960
caattacatt cctgaaagga ttaggaatga cgttaactat atccttaata tggacagaaa   1020
tctgccatca acagctagat atattagacc taatctgctg caggacagac tgaatctcca   1080
tgacaatttt gaatccctgt gggatacaat cacaacttca aactatattc tggcaagatc   1140
cgtcgtgcca gatctcaagg aactggtttc aaccgaagct cagattcaga aaatgtcaca   1200
ggacctccag ctcgaagcac tcacaattca gtcagagacg cagtttctga caggaatcaa   1260
ctcacaggca gcaaatgact gtttcaaaac tctgattgca gcaatgctca gtcagagaac   1320
catgagcctt gatttcgtga ctacaaatta tatgtcactg atttcaggca tgtggctcct   1380
gactgtcgtg ccaaatgaca tgttcattag ggaatcactg gttgcatgtc agctggctat   1440
cgtgaataca attatctatc cagcgttcgg aatgcagaga atgcattata gaaacggaga   1500
cccacagaca ccatttcaga ttgcagaaca gcagatccag aattttcagg tggctaattg   1560
gctgcatttt gtcaacaaca atcagtttag acaggtcgtt attgatggcg tgctcaatca   1620
ggtgctgaat gacaatatta gaaatggaca tgtcattaat cagctgatgg aagctctgat   1680
gcagctctca agacagcagt ttccaacaat gcctgttgat tataagaggt caatccagcg   1740
tggaattctc ctcctgtcaa ataggcttgg acagctggtt gatctcactc ggctgctcgc   1800
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gacaacagaa aaactgcagc tcacttcagt cacatccctc tgtatgctta ttggaaatgc   1920
aaccgttatc cccagccccc agacactgtt tcactattac aatgttaatg ttaattttca   1980
ttcaaattat aatgaaagaa ttaatgatgc agtggccatt atcactgcag ctaatagact   2040
gaatctgtat cagaaaaaga tgaaggcaat tgttgaagat tttctcaaaa gactgcatat   2100
tttcgatgtc gctagagttc cagatgatca gatgtataga ctcagggata gactcagact   2160
gctcccagtg gaagtcagaa gactggatat tttttaatctc atcctgatga acatggatca   2220
gattgaacgc gcatcagata aaattgccca gggcgttatt attgcttacc gcgatatgca   2280
gctggaaaga gacgaaatgt atggctacgt gaatatcgct agaaatctgg atggattcca   2340
gcagattaac ctcgaagaac tcatgagaac aggcgattat gcacagatca ctaacatgct   2400
cctgaataat cagccagtgg cgctggttgg agctcttcca tttgttacag acagctcagt   2460
catttccctc atcgctaagc ttgacgctac agttttttgcc cagattgtta aactcaggaa   2520
agttgatacc ctgaaaccaa tcctctataa aattaattca gatagcaatg acttttacct   2580
cgttgccaac tatgattggg tgcctacttc aaccacaaaa gtctataagc aggttccaca   2640
gcagtttgat ttcagaaatt ccatgcatat gctgacatca aatcttactt tcactgttta   2700
ctcagatctg cttgcattcg tgagcgccga tacagtcgaa cctatcaatg cagttgcatt   2760
tgataatatg cgcatcatga acgagctgta agcgcgc   2797

<210> 7
<211> 783
<212> DNA
<213> Porcine rotavirus

<220>
<223> VP4 gene for capsid protein, partial cds

<400> 7

```
aatctttctg acgaaattca agatattgga tcagctaagt cgcaggatgt tactataaat      60
cctggtccat tcgcacaaac aggttacgca ccagttaatt ggggagcagg tgagactaat     120
gactccacaa ctgtcaagcc attattagat ggtccggacc aaccaaccac tttcaaccca     180
ccaacaagct attggatatt acttgcgcca actgtagagg gcgtaattat ccaaggaaca     240
aacaatatcg atagatggtt ggctactata ctaattgaac caaacgtgca agcaactaat     300
agaatataca atccttttgg tcagcaagaa actttatcgg ttgaaaatac ataccagaca     360
caatggacgt tcattgttgt aagtaaaact acactagctg gaagttatac acagcatgga     420
ctattgctct ctacaccaaa ctcatacgct gtaatgggat tcagcggtag aatatataca     480
tataatggaa ccacgccaaa cgcagcaaca ggatactatt cagctactga ctatgacaca     540
gtaaatatga catcattttg tgacttttac attataccaa gaaatcaaga agaaaaatgt     600
actgagtata tcaatcacgg attacctccc atacaaaata cgaggaatgt tgtgccagta     660
tccttatcgg ctagagagat agtgcacaca agagctcaag ttaatgaaga tattgttgtt     720
tcaaaaactt cactttggaa agaaatgcaa tataacagag acataaccat aagattcaat     780
ttt                                                                   783
```


```
<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8
ccgattcata ttcagtagac ttgcatgatg aaatagaaca gattggatca gagaaaactc      60
aaaatgtaac gataaatcca ggtccatttg cacagactag atatgctcca gttaattggg     120
gacatgggga gattaatgat tcaactatag tggaaccagt tttagatggt ccttatcaac     180
ccactacgtt caaaccacct aatgattatt ggctacttat tagctcaaat acagatggag     240
tagtttatga aagtacaaat aatagtgact tttggacagc agttatcgct gttgaaccac     300
atgttagtca aacaaataga caatatattt tatttggtga aaataagcag tttaatatag     360
aaaataattc agataaatgg aaattttcg aaatgttcaa aggtagtagt cagggtgaat     420
tttctaatag acgaactcta acttctaata atagactcgt aggaatgcta aaatatggtg     480
gaaaagtatg gacatttcat ggtgaaacgc caagagccac tactgatagg tcagatactg     540
cggatttaaa taatatatca attataattc attcagagtt ttatatcatt ccaagatctc     600
aagaatctaa atgtaatgag tatattaata atggtttgcc accaattcag aatactagga     660
acgtagttcc attatctcta tcatccagat ctattcaata taggagagca caagttaatg     720
aagatattac aatttcaaaa acttcattat ggaaggaaat gcaatgtaat agagatatta     780
taataagatt taaatttgg                                                  799
```


```
<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9
tcgctcattt atagacagtt actatcaaac tcatatgtta caaacatctc tgacgaaatt      60
aatgaaattg gaactaaaaa agcaactaac gttactgtta tccagggcc attcgcacaa     120
acgggatatg cgcctgtcga ctggggacat ggtgaattgc ctgactctac attagtgcaa     180
ccaactcttg atggtccata ccaacccact tcacttaatt tgccagtcga ttattggatg     240
ttaattgcgc ctactagaga agggaaagtt gctgaaggta cgaatactac tgacagatgg     300
ttcgcttgtg tactagttga gccaaatgtg caaaatacac aaaggcaata cgtattagat     360
gggcgaaatg tccaattaca tgtctcaaac gattcaagta cttcgtggaa atttatatta     420
ttcattaaat tgacgcccga cggaacgtac actcaatact caaccttgtc aacaccgcat     480
aagttatgcg cgtgaatgaa aagagataac agagtatact ggtatcaagg aacgacaccg     540
aacgcatcag agagctatta cttgacaata aacaatgaca acagcaacgt ttcaagtgac     600
gctgaattcc atttgatacc gcaatcgcag actgccatgt gtacacaata tataaacaat     660
```

```
ggtttaccac caattcagaa tacaaggaat attgtaccag taaatattac atcragacag    720
attaaagaca taagagctca gatgaatgaa gacatagtga tatcaaaaac ttcgctatgg    780
aaagaaatgc aatataatac agatataatc attagattta aatttgctaa ttcaataatc    840
aaatcaggtg ggctaggtta taaatggtcc gaaat                              875
```

<220>
<223> VP6 strain RF open reading frame

<210> 10
<211> 1194
<212> DNA
<213> rotavirus

<220>
<223> VP6 strain RF open reading frame

<400> 10
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atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 11
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 11
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
```

```
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta      960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa     1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt     1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat     1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```


<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12
```
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ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact      120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat      180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg      240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg      300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca      360
ggcattaaat ttaaagaat aaattttgac cagtcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat      480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg      540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac      600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca      660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca      720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa      780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc      840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg      900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta      960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa     1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt     1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat     1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```


<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 13
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atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa       60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact      120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat      180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg      240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg      300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca      360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat      480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg      540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac      600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca      660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca      720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa      780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc      840
```

```
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg   900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta   960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa  1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt  1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat  1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga        1194·
```

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<210> 14
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 14
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa   60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact   120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat   180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg   240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg   300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca   360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat   420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat   480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg   540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac   600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca   660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca   720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa   780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc   840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg   900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta   960
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acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt  1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat  1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga        1194
```

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<210> 15
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 15
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa   60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact   120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat   180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg   240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg   300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca   360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat   420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat   480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg  .540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac   600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca   660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca   720
```

```
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa      780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc      840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg      900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta      960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa     1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt     1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat     1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

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<210> 16
<211> 1348
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence,
      with signal peptide

<400> 16
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct       60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct      120
gccctggctt caggaggctg gcgccgtgat ggatgtcctg tactccctct caaaaactct      180
taaagatgct agagacaaaa ttgtcgaagg cacactgtac tcccaagtca gtgatctcat      240
tcagcagttt aatcagatga ttattactat gaatggcaat gagttccaga ctggaggcat      300
tggcaatctc cccattagaa attggaattt tgattttgga ctccttggaa caactctgct      360
caatctggat gctaactacg tcgaaacggc ccgcaataca attgattatt ttgtcgattt      420
tgtggataat gtctgtatgg acgaaatggt tagagaatca cagagaaatg gcattgcacc      480
acagtcagat tcacttatca agctctcagg cattaaattc aaacgcatta attttgacca      540
gtcatcagaa tacatcgaga actggaatct gcaaaataga agacagagaa cgggattcac      600
atttcataaa ccaaacattt tcccttattc cgcttccttc acgctccagc gctcacagcc      660
cgctcatgat aacctgatgg gcacgatgtg gctcaatgct ggctcagaaa tccaggtcgc      720
tggattcgac tactcatgtg caattaacgc cccagctaat acgcagcagt ttgagcatat      780
tgtgcagctt agaagggtgc tcactacagc tacaatcact cttctgccag atgcagaaag      840
attcagtttt cccagagtga ttacttcagc tgacggagct actacatggt acttcaatcc      900
agtgattctt agaccaaata cgttgaaat tgagtttctg ctcaacggac agatcattaa      960
tacttaccag gcaagatttg gaacgatcat cgctagaaat tttgatacaa ttagactgtc     1020
atttcagctc atgagaccac caaacatgac accagccgtc gctgccctct ttccaaatgc     1080
tcagccattt gaacatcacg caacagtggg actcacgctt agaattgaat cagcagtgtg     1140
tgaatcagtc cttgccgacg caagcgaaac aatgctggca caagtgacat ctgttagaca     1200
ggaatacgcc attccagttg gaccagtttt tccaccagga atgcagtgga ctgatctgat     1260
cactaactat tcaccatcta gagaggataa cctccagcgc gtgtttacag tggcatccat     1320
tcgcagcatg cttgtcaaat gagcgcgc                                        1348
```

```
<210> 17
<211> 1061
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 97CM113 outer capsid protein (VP7)

<400> 17
ggctttaaaa gagagaattt ccgtctggct agcggttatt tccttttaat gtatggtatt       60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa      120
tcactaacta gtgcgatgga cttcataatt tatagatttc ttttacttat tgttattgca      180
tcaccttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat      240
acagcatatg caaattcatc acagcaagaa acattttga cttcaacgct atgcttatat      300
tatcctacag aagcgtcaac tcaaattgga gatacggaat ggaggatac tctgtcccaa      360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata caccgatatc      420
```

```
gcttcattct caattgatcc gcaactttat tgtgattata atgttgtact gatgaagtat      480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta      540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg      600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga      660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta      720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt      780
acaattagga attgtaagaa gttgggacca agagaaaatg tagcgattat acaagtcggt      840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg      900
atgcgagtaa attggaagaa atggtggcaa gttttctata cagtagtaga ttatattaat      960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat     1020
agggtttgat atatcttaga ttagaattgt atgatgtgac c                          1061
```

<210> 18
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18
```
ggcttttaaaa gagagaattt ccgtctggct agcggttagc tcctttttaat gtatggtatt       60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa      120
tcactaacta gtgcgatgga ctttataatt tatagatttc ttttacttat tgttattgca      180
tcatcttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat      240
acagcatatg caaattcatc acagcaagaa acattttga cttcaacgct atgcttatat       300
tatcctacag aagcatcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa      360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata cactgatatc      420
gcttcattct caattgatcc acaactttat tgtgattata atgttgtact gatgaagtat      480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta      540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg      600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga      660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta      720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt      780
acaattagga attgtaagaa gttaggacca agagaaaatg tagcgattat acaagtcggt      840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg      900
atgcgagtaa attggaagaa atggtggcaa gttttctata cggtagtaga ttatattaat      960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat     1020
agggtttgat atatcttagg ttagaattgt atgatgtgac ca                         1062
```

<210> 19
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
      complete cds

<400> 19
```
ggcttttaaaa gagagaattt ccgtctggct agcggttagc tcctttttaat gtatggtatt       60
gaatatacca cagttttaac cttttttgata tcagttatat tgttgaatta cgtactcaaa      120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta      180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac      240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat       300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag      360
ctattttaa tcaaaggatg gccaacagga tctattttatt ttaaagatta tactgatatt      420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat      480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta      540
```

```
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg      600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga      660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta      720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt      780
acgattcgaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt      840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg      900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat      960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc atttactac     1020
agagtataga tatagcttag attagaattg tatgatgtga cc                      1062
```

```
<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds


<400> 20
atgtatggta ttgaatatac cacaattcta acctttttga tatcaattgt tctattaaat       60
tatatattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata      120
gttgttgtca tgctgccatt tattaaagct caaaattatg gaataaatct tccaataaca      180
ggttctatgg ataccgcata tacaaactcc acacaacaag agaattttat gacttccact      240
ttatgcttat attatccaag ttcagtcacg actgaaataa ctgaccccga ttggacgaac      300
acactgtcac aacttttcat gactaaagga tggccgacaa attccgtcta cttcaagagt      360
tatgctgata tagcgtcctt ctctgtagat ccgcagttat attgtgatta caatattgtg      420
ttagtacagt accaaaattc attagcgttg gatgtctcag aacttgctga tttaatttta      480
aatgaatggt tatgtaatcc gatggacgta acgttgtact attatcaaca aacagatgaa      540
gcgaataaat ggatatcaat gggagaatca tgtacggtta aagtatgtcc cttaaatacg      600
caaactttag gaattggatg tacaacaacc gacgtcacaa catttgaaga ggtagcaaac      660
gcggaaaaat tagtaataac tgacgtcgtg gatggagtca atcacaagat taatattaca      720
atgaatacat gtactatacg gaattgcaaa aagttaggac cgagggaaaa tgtagcaatt      780
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaac gatcccacaa      840
actgaaagaa tgatgcgaat aaattggaaa aaatggtggc aggtgtttta taccgtagta      900
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct      960
gcttttact acagaatttta g                                                981
```

```
<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,
      complete cds

<400> 21
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt       60
gaatatacca cagttttaac cttttgata tcagttatat tgttgaatta cgtactcaaa      120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta      180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac      240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat      300
tacccaactg aagcagcaac agaaataaat gataattcat ggaggatac actttctcag      360
ctatttttaa tcaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt      420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat      480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta      540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg      600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga      660
```

```
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta    720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt    780
acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt    840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg    900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat    960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac   1020
agagtataga tatagcttag attagaattg tatgatgtga cc                      1062
```


<210> 22
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 22

Arg Thr Pro Lys Ile Gln Val
1   5

<210> 23
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 23

Glu Leu Asp Lys Trp Ala
1   5